

PRESS RELEASE

January 2024

QPIC1550 PROJECT LAUNCHES TO PIONEER THE USE OF PHOTONICS AT QUANTUM LEVEL

In 2021, the quantum computing market generated \$458 million in revenue and is expected to grow further at an impressive annual rate of 31.2%. This robust growth means that, by the year 2030, the quantum computing industry is projected to exceed a remarkable \$5.274 billion in revenue. This rapid expansion reflects the increasing interest and investment in quantum computing technologies, marking it as a rapidly evolving and highly promising sector.

In this fast-evolving landscape, leading European researchers announce the launch of QPIC1550, a new HORIZON Europe Research and Innovation project. QPIC1550 is the first initiative at a global scale that seeks to demonstrate a purely single photon integrated platform in the wavelength of preference (1550nm) in optical communications.

Quantum Photonic Integrated Circuits (QPICs) are advanced sophisticated circuits that integrate quantum technology with photonics on a single chip, enabling the manipulation of light particles at a quantum level for applications in computing, communication and sensing. The QPIC1550 approach paves the way for using photons in both communication and processing across geographically distant locations, thus reinforcing the bedrock of distributed quantum computing and quantum sensing, fundamental elements for the realisation of the Quantum Internet.

"Our goal is to redefine the capabilities of quantum photonics. By demonstrating the versatility of the QPIC platform across various applications, we aim to chart a new course for quantum technology",
stated Marco Menchetti, coordinator of the QPIC1550 project.

The development of advanced Quantum Photonic Integrated Circuits (QPICs) operating at the telecom wavelength of 1550nm is important for several key reasons:

1. **Compatibility with existing telecom infrastructure:** The choice of 1550nm as the operating wavelength is crucial because it aligns with the standard wavelength used in current optical fiber telecommunications. This compatibility means that these advanced QPICs can be integrated into existing fiber-optic networks, facilitating easier and more cost-effective implementation of quantum technologies in real-world scenarios.
2. **Enhanced performance in quantum computing:** QPICs represent a significant advancement in quantum computing. By integrating various quantum components on a single chip, they can process information at the quantum level more efficiently and with greater precision. This leads to potentially faster and more powerful quantum computers.



3. **Improvement in quantum communication security:** Quantum communication promises unprecedented security. Operating at a telecom wavelength, QPICs can enhance the security of data transmission over long distances, making eavesdropping virtually impossible due to the principles of quantum mechanics.
4. **Facilitating quantum metrology and sensing:** QPICs can significantly improve the precision and accuracy of measurements at a quantum level, which is essential in fields like quantum metrology and sensing. This has wide-ranging implications for scientific research and practical applications in various industries.
5. **Paving the way for the Quantum Internet:** The development of these circuits is a step towards realising the Quantum Internet, which would harness quantum properties for communication and computing. This would revolutionise how information is transmitted and processed, offering speeds and security that are not achievable with current technologies.

ABOUT QPIC1550

QPIC1550 is a 4-year (2023-2027) Research & Innovation project funded by the European Commission's Horizon Europe programme. The QPIC1550 consortium is comprised of 9 esteemed institutions and organisations from 7 European countries: [QTI SRL](#) (coordinator), [Technische Universiteit Eindhoven](#), [Politecnico di Milano](#), [Danmarks Tekniske Universitet](#), [University of West Attica](#), [Martel Innovate BV](#), [LIGENTEC France SAS](#), [Wrocław University of Technology \(Politechnika Wrocławska\)](#) and [University College Cork](#). This cross-country network leverages the expertise of its partners in photonics, quantum technologies, and integrated circuits to drive this pioneering initiative forward.

For more information about the QPIC1550 project:

- Email | info@qpic1550.eu
- X (ex-Twitter) | [@QPIC1550](https://twitter.com/QPIC1550)
- LinkedIn | [QPIC 1550](https://www.linkedin.com/company/qpic-1550)



The QPIC1550 project has received funding from the European Union's Horizon Europe Research and Innovation Actions under Grant Agreement No 101135785.